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ABSTRACT

This paper presents a study which tested 38 boys and 38 girls from grades 3-5 and 6-8 in both sex role identification and creativity. The study was conducted to determine whether past findings which indicate a relationship between low sex role identification and creativity were a function of the scales used in the experiment or of a developmental stage. Subjects were given masculinity or femininity scores determined through teacher and peer ratings of gender identity. A measure of non-verbal creativity was made one year later using the Torrance Figural Form A. The four dimensions measured included fluency, flexibility, originality and elaboration. Within each age and sex group, subjects were divided into "high" and "low" sex role identity groups. Data were subjected to an analysis of variance and analysis of covariance, results indicated no significant main effects. Overall, sex-role groups did not differ in creative functioning, sex groups showed no difference, and age groups were not differentiated. However, boys with high masculinity scores had lower originality and fluency scores; girls with high femininity scores were characterized by higher originality and fluency scores. The results of the teacher gender ratings, showed a similar significant interaction effect for elaboration. Implications of the findings are discussed. (SB)

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SEX ROLE DEVELOPMENT AND CREATIVE FUNCTIONING IN PREADOLESCENT AND ADOLESCENT STUDENTS

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Sex-Role Development and Creative Functioning in Pre-Adolescent and Adolescent Students

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Developmental personality theorists have frequently suggested that the highly creative individual is also characterized by a mixed, or cross-sex role orientation. Early and neo-psychoanalytic writings, in large measure based on clinical case material, and restricting their formulations to male subjects, have stressed the potentially deviant identification process in the child, as the most likely precursor to later proclivity in creative functioning. Thus, the young boy's undue identification with his mother (with implied homosexual potential), or the young boy's unstable identification with the masculine "persona" role, and available expression of feminine characteristics, were postulated as setting the stage for later creative expression.

Early empirical studies have provided tentative support for the theoretical notion that at least in males, some cross-sex identification was related to a greater potential for creative functioning. Barron (1957) and MacKinnon (1962,1965) found that highly creative males were characterized by higher femininity scores, when compared with less creative males. However, they also reported some inconsistent results across different masculinity-femininity scales. More recent studies, dealing with younger groups of male subjects, and also using a greater variety of masculinity-femininity scales fail to replicate the earlier findings. For example,

the study by Grant (1972) found no differences in SRI between more and less creative adolescent males.

Although the relevance of sex-role identity issues for creativity has been theoretically emphasized for males, there have been a number of studies attempting to investigate the impact of cross-gender identification for female subjects. Helson (1967), (in a study where there was no direct measure of the masculinity of creative women, but rather a more generalized measure of personality traits), reported, that the more creative women identified both with their fathers as well as with their mothers, they remembered having trouble adjusting to the social demands of adolescence, and apparently were disadvantaged during the period of sex-role learning. Helson's research, however, provides scant evidence for cross-sex identification in creative women. Suter (1971) conducted an investigation of creativity and the extent of cross-sex identification, using both MANIFEST and LATENT measures of sex-role identity, in its relationship to creative functioning. She concluded that it is possible that creative men do differ from less creative men in manifest sex-role, but for women, this differentiation does not hold. Also, that neither creative men, nor creative women, showed a differentiation in latent aspects of sex-role identity.

To add to the confusion, there are at least two studies, Rees and Goldman (1961) and Torrance (1963), which report that a mixed sex orientation in both males and females is more characteristic of less creative subjects.

The general interpretive direction that is noted in most of the recent empirical studies suggests a departure from earlier theoretical formulations. The stage-specific developmental deviancy hypothesis (i.e., inadequate

resolution of oedipal issues) is no longer emphasized. Instead, the highly creative individual of both sexes is viewed as being less repressive, and more open to his emotions, as well as having greater personal awareness, wider interests, greater sensitivity, and greater capacity for the integration of contradictory and competing personal needs.

The mixed nature of the results encountered in this area of research is very likely accounted for by three main factors. First, the issue of transparency of the sex-role scales used in the earlier studies. Second, the prevailing measurement, as well as conceptual assumption that masculinity and femininity form a single bipolar variable, and third, the possible contamination of results due to disregard of developmental stage considerations in the samples studies.

The present study attempted to control for the above mentioned methodological factors. Sex-role indices used in this study were independent of self-perception and consisted of both teacher and peer gender-identity ratings. Furthermore, the measurement of sex-role identity was based on procedures which yield independent measures of masculinity for boys and femininity for girls. Finally, data was collected for both pre-adolescent, as well as adolescent subjects. It was hypothesized in this study that for both males and females, the relationship between appropriateness of gender identity and creative functioning is different for the two developmental stages represented in the sample.

Method

Subjects

The subjects for this study were derived from an elementary school district student sample who participated in both a large scale gender identity project and a creativity study. The total N of 76 was composed

of 22 boys and 22 girls in grades 3-5, and 16 boys and 16 girls in grades 6-8. All subjects were white and came from an upper-middle-class school district.

Gender Identity Measures

Masculinity and femininity scores were determined as part of the 1971 study by Vroegh, and included teacher rankings and peer ratings of gender identity. The teacher rankings were obtained by the pair comparison method. The classroom teacher judged all possible male and all possible female pairs in his/her classroom as to appropriateness of masculinity or femininity. The teacher was asked to decide which child in the pair acted more like he/she thought that boys or girls, were expected to act. On the basis of the pair comparison judgments by a teacher, the subjects in a classroom were rank ordered within sex. The ranks were then normalized, using the C-scale values recommended by Guilford (1954). This normalization was carried out so that rank scores of gender identity as determined by different teachers could be pooled across classrooms and grades.

Gender identity scores determined by the subjects' peers were obtained by asking each student to rate the boys in the class as to the degree of masculinity that they exhibited, and the girls as to the degree of femininity. The peer ratings were performed on a 4-point scale, with the endpoints being identified by: Acts very much like a boy (or girl), to acts very little like a boy (or girl).

Creativity Measures

The Torrance (1966) Figural Form A, a measure of non-verbal creativity was administered to the subjects a year after the gender identity ratings were made. For each subject, total scores on four dimensions of creative functioning were determined. The four dimensions included Fluency,

Flexibility, Originality, and Elaboration. The scores were obtained by summing across three figural test activities: Picture Construction, Incomplete Pictures, and Parallel Lines. The creativity test materials were scored by the publisher of the instrument, by raters who were trained by Paul Torrance. All creativity scores were converted into t-scores, in order to allow cross-age comparisons.

Results

Within each age and sex group, the subjects were divided into "high" and "low" sex-role-identity groups by a median split. The data was subjected to two sets of analyses. The first, a 2 x 2 x 2 analysis of variance, with age group, sex, and sex-role group as the independent variables, and the four creativity measures as the dependent variables. This was followed by a 2 x 2 x 2 analysis of co-variance, in which intelligence was the covariate. The need for the covariance correction of IQ stemmed from the fact that the groups to be compared did differ somewhat on intelligence. The significant results to be reported below deal only with consistent group differences which held up in both the analyses of variance as well as the analyses of covariance. The analyses were performed once with the use of teacher-determined sex-role grouping as one of the independent variables, and later with peer-determined sex-role grouping as one of the independent factors.

In all of the analyses, none of the main effects were significant. Overall, sex-role groups did not differ from each other in creative functioning, sex groups showed no difference, and age groups were not differentiated. In testing the main hypothesis of this study, we must reject the notion that developmental considerations have an impact on

differences in creative functioning between "high" and "low" gender identity groups, since the age group x sex role group interactions were not significant. Tables I and II, in the appendix present means and standard deviations for sub-groups by sex, sex-role, and age. Table I presents groups determined by teacher ratings of sex-role and Table II presents group determined by peer ratings of sex role.

However, both the analyses of variance, as well as the analyses of co-variance yielded significant ($p < .05$) sex role x sex interaction effects. Using gender identity groupings derived from peer ratings, it was found that boys who had higher gender identity ratings; i.e., more masculine boys, were characterized by lower Originality and Fluency scores, as compared with the group of boys who were rated "low" on masculinity. For girls this trend was reversed. The group of girls who were rated as higher on femininity scored considerably higher on Originality and Fluency, as compared with the group rated as "low" on femininity. The group means suggested that the above trend was characteristic of both the pre-adolescent as well as of the adolescent groups. In the area of Originality, the mean difference between the "high" and "low" masculinity groups was more pronounced, than for the femininity groups. For Fluency, the difference between gender identity groups was greatest for the girls.

The results of the analyses using teacher-defined gender identity ratings yielded a significant Sex x Sex Role interaction effect for the creativity dimension captured by the Elaboration score. Again, the "low" masculinity boys and the "high" femininity girls were characterized by the highest Elaboration scores. Mean differences in the girl groups were quite pronounced, while in the male groups the differences were more subdued.

Discussion

We attempted to test the notion that the relationship between adequacy of sex-role identification and creative functioning is more pronounced in adolescence, as compared with the pre-adolescent age period. On the basis of the statistical results of this study, the hypothesis must be rejected. It was assumed that students in early adolescence will be most reactive to the newly re-emerging sex-role identity issues. Current American culture is abundant with societal stresses for the young adolescent, with considerable peer, familial, and media influence for rapid establishment of sex-role behavior. Pre-adolescence and early adulthood developmental phases seem to offer a degree of flexibility in sex-role behavior patterns which is not readily available to the adolescent individual. It is this line of reasoning that led us to postulate, that for the pre-adolescent, the relationship between gender identity and creativity will be less pronounced, as compared with adolescents.

The results of this study are remarkably similar to findings by Ponzo and Strowig (1973). They report that in a large sample of early and late adolescent high school students they found a positive correlation between adequacy of sex-role identity and academic achievement for their female group. However, in the male group the relationship was significantly reversed, with the high sex-role male group achieving academically much lower.

Although the sex-role indices used in this study are significantly correlated, the teacher based index and the peer based rating seem to predict differentially to various aspects of the creative process. Vroegh (1971) reported a range of correlations for masculinity ratings (between

teacher and peer indices) from .45 to .64. The range of correlations for the femininity ratings was from .38 to .76.

In the same study, Vroegh reports that in grades 4-6 the personality (Cattell Factors) correlates of masculinity are: greater social competence - being outgoing and confident - greater intellectual competence (abstract thinking), and psychological competence (tough mindedness). In grades 7-8 high ratings of masculinity were associated with being venturesome, assertive and group dependent.

For femininity in grades 4-6, being patient and naive - as well as being socially and intellectually competent were correlated with appropriate female gender identity.

Our data suggest (keeping in mind that we co-varied the effects of intelligence) that at least for pre- and adolescent boys, being less socially minded, more independent, less assertive, and, in a general sense, more introverted, may set the stage for more creative functioning. Girls, however, who are high in social competence and who have a generalized sense of personal calmness, are the ones who can function at a higher creativity level. The extremely high mean score on the Elaboration dimension for the high femininity girls can be employed to support this conclusion. A high Elaboration score, reflecting one's ability to extend an idea into a completed product, does require the kind of internal control which is associated with a low score on the D factor of Cattell's scales.

Having found that "high" femininity and "low" masculinity groups score higher on three of four creativity dimensions, provided additional support for the position of viewing sex-role identity as a multi-dimensional variable. In light of the correlations of personality measures with adequacy of sex-role

ratings, we find that there is some overlap of functions which characterize both high masculinity and high femininity. However, within each sex there are unique personality correlates as well, which preclude the consideration of masculinity as the opposite of femininity.

In closing, we wish to repeat that our sex-role group selection was determined by a median split, we did not use extreme groups, thus we feel that the stability of the findings has been considerably strengthened.

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TABLE I: Means and standard deviations for the effects of Sex, Sex Role (teacher rankings) and Age on four creativity measures and IQ

Age		Males				Females			
		Sex Role				Sex Role			
		High		Low		High		Low	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Pre Adolesc.	Flue	48.75	10.90	45.50	11.17	48.00	10.59	47.08	8.91
	Flex	49.17	9.73	48.00	9.19	47.00	9.78	48.33	10.73
	Orig	39.58	14.05	38.00	7.15	36.50	9.44	40.00	14.30
	Elab	59.58	12.87	55.50	14.62	70.00	15.28	57.50	12.52
	IQ	106.00	14.70	110.70	13.83	119.00	9.57	113.33	10.08
Adolesc.	Flue	43.50	7.09	46.67	11.69	41.88	7.53	44.38	7.76
	Flex	47.00	6.75	55.83	11.58	46.25	8.35	48.75	9.54
	Orig	42.50	7.91	45.00	15.17	40.00	9.26	42.50	13.36
	Elab	52.00	12.29	60.00	13.78	64.88	17.45	52.50	11.95
	IQ	119.50	12.65	119.83	17.26	110.13	15.04	114.88	7.97

TABLE II: Means and standard deviations for the effects of Sex, Sex Role (peer ratings) and Age, on four creativity measures and IQ

Age		Sex: Male, Sex Role: High		Male, Low		Female, High		Female, Low	
		$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD
Pre Adolesc.	FLUE	46.67	12.12	48.00	9.78	50.45	11.06	44.55	6.88
	FLEX	47.50	9.89	50.00	8.82	48.18	11.02	47.27	9.58
	ORIG	37.08	11.77	41.00	10.75	40.00	14.66	36.82	9.56
	ELAB	54.58	12.15	61.50	14.73	64.55	16.50	61.82	13.83
	IQ	100.50	9.94	117.30	13.30	113.00	10.03	118.82	9.62
Adolesc.	FLUE	41.25	5.82	48.13	10.33	45.00	7.91	40.71	6.73
	FLEX	48.75	8.35	51.88	11.00	50.56	8.46	43.57	8.02
	ORIG	38.13	7.53	48.75	11.26	43.89	12.19	37.86	9.51
	ELAB	56.25	8.76	53.75	16.85	64.33	16.21	51.43	12.82
	IQ	115.38	11.38	123.88	15.74	113.78	15.54	110.86	5.05

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